

WE HAVE REACHED LIMITS IN SPORTS

declares T. S. DOUGLAS

CAN SCIENCE PRODUCE SUPER-MEN?

STOP-WATCHES are common at athletic meetings, rare at cricket and football matches. But the spectator with a taste for simple calculations can learn a good deal about cricket with the aid of a stop-watch.

Bearing in mind that a cricket pitch is 22 yards long and that a ball covering 88 feet per second is travelling at 60 m.p.h., he can make some interesting and useful calculations.

For instance, is that hit worth two or three runs? Much depends upon the skill and

speed of the fielder, but there is a basis of unalterable facts.

A hard-hit ball travels at 60 m.p.h. or more, and so will require $1\frac{1}{2}$ seconds to cover 40 yards. Not long enough for even a single run, since even a trained sprinter will require just over 2 seconds to cover the distance between the creases.

But we have to allow for the pick-up and return. The fielder who returns the ball "like a shot out of a cannon," cannot throw it over a distance of more than a few yards at a speed approaching 60 m.p.h., so that gives 3 seconds, even if the ball is immediately picked up

and returned accurately. It is long enough for a run.

If the fielder returns with a high trajectory, the throw itself may provide enough time for a run.

This is a simple sample of the amusing calculations that can be made about cricket.

NO CANNON SHOT.

Incidentally, the expression "like a shot out of a cannon" is

a vast exaggeration. A cricket ball is rarely moved, even by a fast bowler, at more than 100 feet per second.

An old-fashioned cannon imparted a velocity several times this and, of course, the speed of the missile from a modern weapon runs into thousands of feet a second.

You sometimes hear of a ball travelling so fast that it is invisible.

In certain conditions of light that might be so for a spectator, but not for a batsman, with the ball coming straight towards him. The velocity would have to be four or five times greater. If he does not see the ball, it is probably because he is looking in the wrong place!

This may be due to swerve or break, both produced by making the ball spin rapidly. The spin of the ball sets up unequal air pressure on its two sides, with the result that it tends to move towards the partial vacuum, and moves away from its "true" line of flight.

Swerve is helped by atmospheric conditions, and, of course, by the seam on the ball. Even moisture on the ball is sufficient to set up unequal pressure. Hence the notorious "spit ball" curve of baseball pitchers.

Break is produced by the spin "taking" on the ground. The ball is held on one side and does not bounce truly. If the spin is from left to right (of the bowler), the break will be the same way.

Spin in the vertical plane will make the ball dip if it is forwards, and "hang" if it is backwards.

SPLIT-SECOND SLASH.

Have you ever calculated the split-second decisions that a first-class batsman makes when he slashes at a "no-ball"?

The umpire sees the bowler's foot drag over the line and shouts "No ball." The ball is already on its half-second journey to the batsman. Owing to the natural lag between observation and the muscles coming into play ("reaction time") it may be 1-5th of a second after the release of the ball that the umpire shouts.

Only a fraction of a second is taken for sound to travel the 66 feet to the batsman (very much longer to reach the spectator, so your opinion that the umpire was "late" may be unscientific!). But the batsman has to hear it and his brain to direct his muscles afresh—another 1-5th of a second.

Only a minute fraction of a second is left for the actual stroke, and one can only marvel at the skill which makes this sufficient for the despatch of the ball to the boundary.

In practice, the response of the experienced batsman to the call of "no ball" is probably automatic.

Then again, successful batsmen are those gifted with a very short reaction time. There is a great difference in reaction times between man and man.

Put a penny on a table with a skilled boxer on one side and an average man on the other, telling them to pick up the coin when you shout "Go." The boxer will probably have the coin in his hand before the



other man has moved his hand. Cricket is largely applied mechanics. Perhaps a captain should also have some knowledge of probabilities and permutations.

If you never agree with the XI actually picked from a list of "possibles" for a Test Match, remember that from 17 possibles the selectors could choose 12,376 different elevens and arrange them in nearly 40,000,000 different batting orders!

Scientific study of football or any other game provides equally interesting facts.

When we come to athletics, the interest of the scientist is in discovering the limits of the human machine. Athletic records of all kinds have come down and down. Now experts talk confidently about a 4-minute mile after the war.

Why can't we contemplate a 3-minute mile, an 8-foot high jump or a 35-foot long jump? What are the limits of the human machine?

LIGHT-WEIGHT LEAPS.

The limits to jumping are inherent in the human frame. The reason why man will never be able to jump as many times his own height as the grasshopper and the flea, is not only in the specialised construction of these insects, but also because of the relative weight.

The amount of muscle required to raise a man 8 feet up against gravity, or 40 feet horizontally, would weigh so much that it could not be contained in the human body. Nothing less than a completely different kind of muscle would make these records possible.

This is why it is fundamentally impossible for men to fly like birds.

But it is dangerous to forecast exact limits anywhere near the present records. Scientific study of exactly what the athlete must do has in the past resulted in long-standing records being well beaten.

For instance, the high jump record of 6ft. 6in. was for forty years considered the limit. Scientific study showed that a different style of jumping, the roll, enabled the centre of gravity to be kept lower, and the record went up.

Timing sprinters electrically for every 10 yards of the 100 yards showed them where they lost time and enabled them to gain that extra yard which meant clipping the record. A

sprinter may travel 6 feet in 1-5th of a second. A bad starter can lose this amount of time.

Probably any of our first-class sprinters would better their times surprisingly if they had a "flying start," i.e. ran 110 yards with only the last 100 counting. This method, with a broken light ray to time the start and finish electrically, may be used in the future and see records lowered.

Lungs, heart and, to a degree, brain count more than "legs" in running. Wooderson, the mile record breaker, weighs only 8st. 12lb. But he has exceptional lungs, which can supply his muscles with the necessary oxygen for 17 times longer than those of a sprinter need do.

The short man is enormously handicapped in sprinting—he just cannot make up for length of stride by the number of leg movements. The result is that most successful sprinters are big men.

Many athletes have a slow and powerful heart-beat. One had a beat so slow that he wore a metal tag recording it, in case he should ever be involved in an accident and a strange doctor should think he was dying! Henry Armstrong's heart beat was only 55, against the normal 70-80.

ELECTRIC PACEMAKERS.

But there are limits to all these physical advantages. Man, because of his construction, will probably never be able to make more than six strides a second—and his limit in speed is, therefore, necessarily in the region of 20 m.p.h.

A nine-foot giant might be able to cover a greater distance in his 6 strides, but unless he had heart and lungs in proportion, he could not do it for more than a few seconds.

Athletics have become more and more scientific. Professor Hill, the noted physiologist, has suggested that by a snake-like movement a jumper might be able to get his body over the bar while the centre of gravity remained below it.

Nurmi ran with a stop-watch, having worked out exactly how many yards he had to cover in each ten seconds.

Perhaps in the future we shall have electrical pacemakers like the hare at greyhound racing!

L.S. ROBERT GOSSIP — HERE'S DAVID

HELLO, Leading Stoker Robert Gossip!

What do you think of David now?

Bonny chap, isn't he? Only six months, and he weighs 1st. 4lbs.

And although you have not seen him since he was six weeks old, he knows his Daddy, too.

Your wife has only got to say "Where is your Daddy?" and he looks up at your photo on the wall, all chuckles and smiles.

Mrs. Gossip is teaching him to say "Daddy." So you know what will probably be his first words.

And my, won't your wife be proud then!

There is a great big welcome waiting for you when you come home.

Mrs. Gossip, by the way, has had a nice holiday with her sister-in-law at Edmonton. She was away for a month, and had a lovely time.

It was the first time they had seen baby, and they, too, thought the world of him. All at home send their warmest love.

WHAT! £500 GOING SPARE

PRIZES totalling £500 are being offered to men and women in the Forces for their ideas on the post-war world.

The British Legion announces an essay competition, with a first prize of £250, open to all members of the Navy, Army, R.A.F., Women's Auxiliary Services (W.R.N.S., A.T.S. and W.A.A.F.), the Merchant Navy, and prisoners of war.

The subject chosen for the essay is: "My ideas and hopes for post-war conditions: how the British Legion can help me to realise them."

Essays, which should not exceed 1,000 words in length, and may be shorter, must be sent to the Legion Headquarters, Cardigan House, Richmond, Surrey, in an envelope marked "Competition."

There are no entry forms or fees, but each essay must bear the name, rank, Service, and permanent address of the sender. Entries from men and women serving at home must arrive by March 31st, 1944, but those abroad have until June 30 next in which to get their essays in.

There is a second prize of £100, a third of £75, fourth of £50, and fifth of £25.

For the guidance of competitors, the Legion issues the

following statement on its aims:—

"The Legion is primarily a comradeship, in which all are equal and all are out to serve King and Country and each other. All who have served are eligible to join. It works through branches in every town and hamlet, remembering the Fallen, caring for the disabled, the widow and the orphan, and assisting those who have left the Services in finding suitable employment.

"While seeking to influence Government policy as it affects rehabilitation, employment and pensions of those who have served, the Legion pursues its aims with complete freedom from party politics. It has champions of its cause in all parties. Within these limits it hopes to frame a forward policy. The Legion wants to discover what men and women who are now serving are thinking."



To-day's Brains Trust

AN Archaeologist, a Geologist, a prominent Churchman and a modern Poet discuss:

There are still people who believe in the Biblical story of the Flood, and accept the details literally. Is there any scientific justification for this, and if not, what is the scientific account of the matter?

Churchman: "Geologists have shown that every land surface in the world has been submerged beneath the sea, and bears rocks—or traces of former rocks—which could only have been formed under water. At one time, this was cited as evidence of the Flood, but it is now admitted that these sedimentary rocks are all of different ages, and that nothing like the whole surface of the

earth could ever have been submerged at once, except by a miracle. The Church believes in miracles, but in this instance it is content to believe that a comparatively small local flood, sent as a punishment to the Hebrew race at the time of Noah, would be adequate to justify the Bible story."

Geologist: "I think there is no doubt that the story is a grossly exaggerated account of a quite local event."

"Geologists have never at any time suggested that the earth has been completely submerged at one and the same time."

"There has never been sufficient water for the purpose, and geological evidence is overwhelmingly against it."

Archaeologist: "There are numerous stories of the Flood, and it is certainly a curious thing, but they all have certain features in common."

"There is always an ark, for instance, or a turtle or a codnut shell instead, and the subsidence of the waters is nearly always accompanied by the appearance of a bird with a leaf in its beak, and later by a mountain-top. The Eskimos have it, the Peruvians have it, and it occurs in the Far East."

"For a long time it was believed that the Bible account was derived from the earlier Babylonian one, but it is now

thought that both of these derive from a much older legend which is now lost."

Geologist: "The original local cataclysm may have occurred in the Persian Gulf, or in Lower Mesopotamia, where violent floods were by no means uncommon, but one of the most interesting theories is that it was the flooding of the Mediterranean Basin, which took place some twenty thousand years ago."

"Before that time, the

Mediterranean was an inhabited land containing two large lakes, and the waters of the Atlantic Ocean were kept out by a narrow wall of rock across the Straits of Gibraltar."

"After the last Ice Age, the level of the Atlantic rose, and presently it burst through the Straits and poured in upon the inhabited plains below. That was certainly the most gigantic cataclysm which occurred during the history of the human race."

ROUND THE WORLD with our Roving Cameraman



A FLIGHT OF LOCUSTS.

They darken the sky, they eat every blade of green stuff, they make a desert of the plains. The wing-movements of these countless insects make a hissing sound, and observers can be half-suffocated by the sickly sweet smell of their bodies. This swarm flew across the Uganda border and devastated many thousands of acres in Kenya. So now you know what Pharaoh must have felt like when the curse fell on him and his fair fields.

ODD CORNER

"STONE - CRACKERS"
have disappeared from our kerb-stones, but in the last century men who professed to be able to crack lumps of granite with their fists—for a penny—were not uncommon. The lump of granite was placed on the kerb-stone, and another piece of granite laid on top of it. The performer would then wrap a handkerchief round his fist and bring it down smartly on the top

stone. The bottom stone was then found to be cracked in two. Some stone-crackers used their bare fists, and developed a solid, horn-like mass of skin in consequence.

A more dangerous way of earning coppers was at one time seen on our race-courses, where a man would stick a needle in the turf, point uppermost, and then, standing astride it, he would bend backwards till his head reached the ground, and pick up the needle by piercing the skin of his eyelid with it! He informed Frank Buckland, the naturalist, that he had learnt the trick from a Dutchman, and had been performing it for twelve years without mishap.

Archaeologist: "That is an ingenious suggestion, but I am inclined to place the original Flood of the story earlier still. All the stories agree that the whole human race was wiped out with the exception of a single family."

"Now, I think it quite possible to accept that, if the Flood occurred at a time when the human race was still to be numbered in thousands instead of millions."

"Even in the Old Stone Age the human population of the earth may have been three or four millions, but there must have been a time when quite a common type of inundation would have sufficed to have drowned all the human beings then alive. That would have been before there was any differentiation into races, and would account for the wide distribution of the Flood story."

Churchman: "I do not think we should raise any objection to that, nowadays. Indeed, if we allow for a little picturesque Hebraisation of the story, it sounds remarkably promising from the theological point of view."

"The Bible story says, 'there were giants in those days,' and, if you remember, the Flood was sent as a punishment for unnatural practices—the sons of God saw the daughters of men that they were fair; and they took them wives of all that they chose."

"Is there any scientific evidence that might interpret these statements?"

Archaeologist: "Well, it all depends. If you date the Flood at about the time of the Mediterranean cataclysm, then there may be evidence of a sort."

"For instance, there was a race of men known as Cro-Magnards living in Europe at that time, and their average height was well over six feet, often approaching seven. I think we might call them giants."

"There is also evidence of inter-marriage between the true-human races and the sub-human Neanderthals, their hybrid progeny possibly becoming the mysterious 'Piedmont' folk whose origin is still disputed by anthropologists. But the evidence is meagre and open to question."

The "fire-eater" has also disappeared from Britain. One used to turn up regularly at Epsom on Derby Day, under the title of "the celebrated living Salamander." He produced a tin plate, and heaped on it a pile of tow, which he sprinkled with resin and lit with a match. When it was blazing he would cut it up with a knife and fork and eat it!

What is a "Shillibeer"? The answer is, one of the original buses put on the streets of London by Mr. Shillibeer, in the early 19th century. Each bus was provided with a small library of books for the passengers to read on the journey, but this practice was soon discontinued, because—according to a contemporary newspaper—"the customers boned the books."

Poet: "I do not know why I have been invited to this session of the Brains Trust, but since I am here I should like to ask why it is felt necessary to find any evidence at all in support of the Flood?"

"It seems to me that it is a beautiful old story, and that it, therefore, contains, much truth, whether it is literally true or not."

"It may be as false, historically, as Bernard Shaw's 'Candida,' which surely never happened, and yet be just as full of profound truth of the sort that really matters to living men and women—that is, spiritual truth. I think it would be a great calamity if the Flood story turned out to be merely historically accurate."

Answer to Picture Quiz in No. 215: Macaroni in Jar.

QUIZ for today

1. A carob is a two-wheeled cart, Spanish dance, tree, Rabbi's cloak, bird, young weasel?
2. Who wrote (a) The Open Road, (b) The Old Road?
3. Which of the following is an intruder, and why: Setter, Pointer, Retriever, Waler, Mastiff, Beagle?
4. How many letters are there in the Italian alphabet?
5. Of what wood are billiard cues made?
6. How many animals are shown on the back of a £1 note?
7. Which of the following are mis-spelt: Confection, Completion, Infatuation, Auriole, Fulminate?
8. What rank in the W.A.A.F. is equivalent to a Corporal in the Army?
9. Who was Bealby?
10. Who writes under the name of "Sapper"?
11. On what river does Chester stand?
12. Complete the phrases, (a) Red as a —, (b) Mad as a

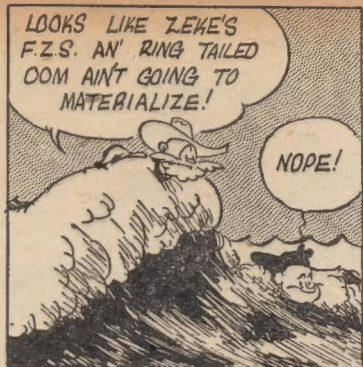
Answers to Quiz in No. 215

1. Kind of tea.
2. (a) Mark Twain, (b) Henry James.
3. Radnor is in Wales; the rest in England.
4. Edinburgh.
5. Cedar.
6. Four; Rose, Thistle, Shamrock, Daffodil.
7. Repellent, Essentiality.
8. Pilot Officer.
9. Highwayman in "Lorna Doone."
10. Dickens.
11. Lewes.
12. (a) Bone, (b) Dog.

JANE



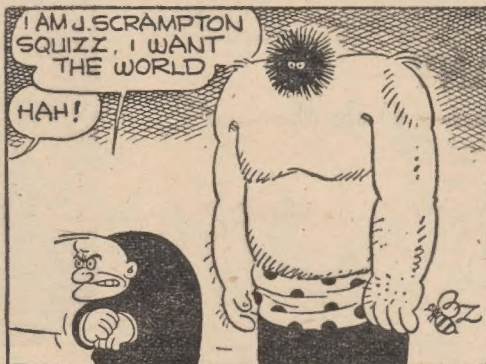
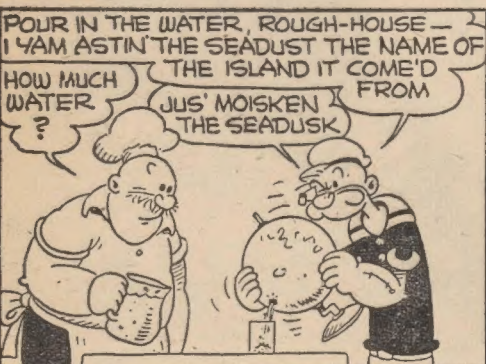
BEELZEBUB JONES



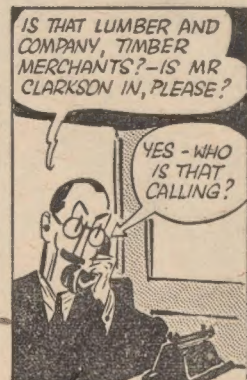
BELINDA



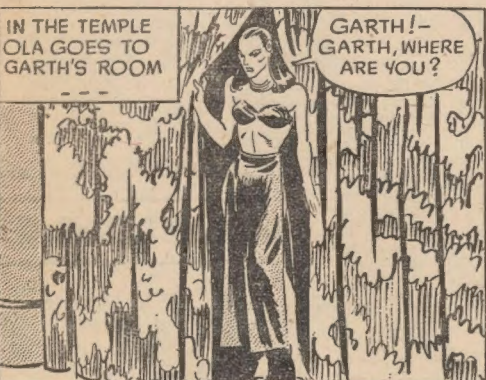
POPEYE



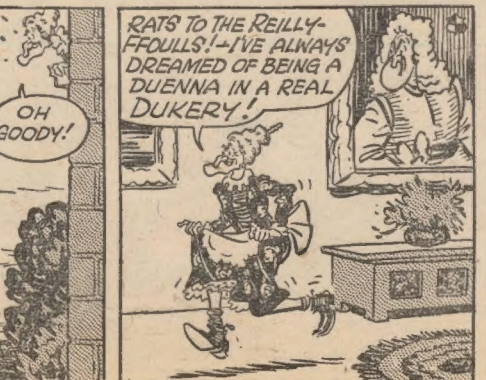
RUGGLES



GARTH



JUST JAKE



HARDLY SHIP-SHAPE

By E. W. DROOD—No. 8

THE CLEOPATRA

SHE was a ship built to make one voyage only, and here is the reason for her building.

It took nearly eighty years to arrange to move Cleopatra's Needle (so-called) from Egypt to its present position on the Embankment, but that was a very short period in the span of 3,400 years from the days when it was quarried some 700 miles up the Nile.

Two of these obelisks were presented, one to the British and one to the American peoples—the second is in the Central Park, New York City.

The obelisks were originally set up by one of the Pharaohs about 1500 B.C. at Heliopolis, and removed about 14 B.C. to the Casareum at Alexandria, where they were lying over 1,800 years later when the British Army was fighting during the Napoleonic Wars in Egypt.

All sorts of plans were discussed for the removal of the British "needle," but nothing definite was done until, some 75 years later, an engineer named Dixon came on the scene and planned the ship, or rather "container," that would transport it.

A cylindrical iron vessel, with sharply tapering ends, measuring 93 feet overall, with a diameter of 15 feet, was built on the Thames. She was divided into twelve watertight compartments and ballasted with twelve tons of iron rails. The whole contraption was taken in sections to Alexandria.

It was no easy job to move the obelisk. First it had to be dug out of the sand, then the cylinder built round it, and the seventy-ton weight of rose-red Syene granite wedged tightly inside.

There was a total weight of nearly 300 tons to be rolled along to the Nile and then towed the ten-odd miles to Alexandria.

At that port a deck, a deck-house and a bridge were superimposed, and bilge keels and a rudder added. A short mast completed the Cleopatra—surely one of the strangest ships ever built, and certainly one of the unhandiest in a sea-way.

After a captain and a crew of seven men had been installed, on September 21st, 1877, in tow of the steamship Olga, the long voyage to Falmouth was begun. In spite of her mainsail and jib, the Cleopatra rolled and plunged and tossed and strained and wallowed, and sometimes crawled broadside on. Still, she made comparatively good progress, for after a call at Algiers she was at Gibraltar by October 7th.

A couple of days later she left again, but within a week disaster overtook her. The first boat sent from the Olga, when a heavy gale seemed to deny the possibility of a continuance of the voyage, was lost, but a second managed to remove the Cleopatra's crew. The obelisk, ship-container and all, was abandoned, and the Olga proceeded on her way alone.

For a time the derelict drifted about, a grave danger to shipping, but she was eventually picked up by a steamer and towed into Ferrol. After the owners had paid through the nose for the salvage the journey recommenced, again in tow.

Buckin' and rarin' enough to obliterate the hieroglyphics from the granite column, the Cleopatra arrived at long last in East India Dock.

Moving up later to the Adelphi, where preparations had long been going on for its reception, the "needle" was winkled out of its container, and on September 12th, almost exactly a year after the voyage had started, it was set up on the plinth where it now stands.

If Pharaoh Thotmes (or it may have been Tethmosis III, if anybody is interested in the original owner) knows anything about it, he may well be saying, "It makes you think."

LAUGH WITH SHAUN McALISTER

The orderly sergeant was making a tour of inspection. "Any complaints?" he roared, dancing round the mess-room.

"The stew's funny to-day," grumbled one raw recruit.

"Oh, is it?" bellowed the sergeant. "Then why the 'ell aren't you laughing at it?"

Your conscience is the voice that tells you not to do the thing after you've done it.

Good Morning

All communications to be addressed to: "Good Morning,"
C/o Press Division,
Admiralty,
London, S.W.1

★ OH! IDA . . . WHAT AN IDEA! ★

But you've certainly blazed the trail
in "Titfer" fashions, Miss Lupino



TWO'S COMPANY

And what's more appropriate for a journey to slumberland
than a travelling rug?



This England

Wide open spaces. A view of the Yorkshire
moorland.

SPOIL SPORT

"I don't
know what
you guys are
up to, but
you certainly
look very
guilty."



ORDER OF THE BATH



Now this is where I really
put my foot in it.

SHIP'S CAT SIGNS OFF

"Bare-faced
cheek,
I call
it"

